Barloworld Scientific
Laboratory Group US

CARBOLITE®

stuart®

Science Equipment

stuart **5 YEAR TOTAL WARRANTY**
3 years parts & labor/2 additional years labor

Key to symbols

Barloworld Scientific Laboratory Group US offers a variety of benchtop instruments to provide the necessary rocking, rolling rotating or shaking action for your application.

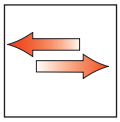
The symbols shown here are used throughout this catalog to describe the unique characteristics of each motion.

Gyratory motion
The platform moves in a three-dimensional motion.

Orbital action
The platform moves in a circular orbit.

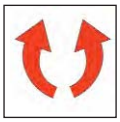
Rocking motion
The platform rocks on a central pivot.

Rotating motion
Platform revolves at a tilted angle.



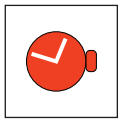
Reciprocating action
The platform moves back and forth horizontally.

Vortex motion
The cup generates a 'whirlpool' vortex action.



Pivot motion
Simulates a vigorous shaking action.

Rotative motion
Unit revolves around a fixed point.



Timer
Allows shaking times to be pre-set.

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Contents

2 Introduction

4 Barloworld Scientific

5 Colony Counter

7 Furnaces, Box

13 Furnaces, Tube

17 Hotplates

21 Incubators

23 Melting Point Apparatus

27 Mixers

29 Ovens

31 Rockers

35 Rollers

37 Rotators

41 Shakers

45 Stirrers & Stirrer Hotplates

55 Water Purification

60 BSLG US Overview

62 Index (by catalogue number)

63 Index (alphabetical)

Welcome to the 1st edition of the North American Stuart® benchtop science equipment catalogue.

To mark the continued improvement and evolution of the range you will find all the products now have a new modern contemporary color scheme and distinctive logo so that you can easily recognize Stuart® product and be totally confident that it will provide an innovative, reliable solution and offer exceptional value for money.

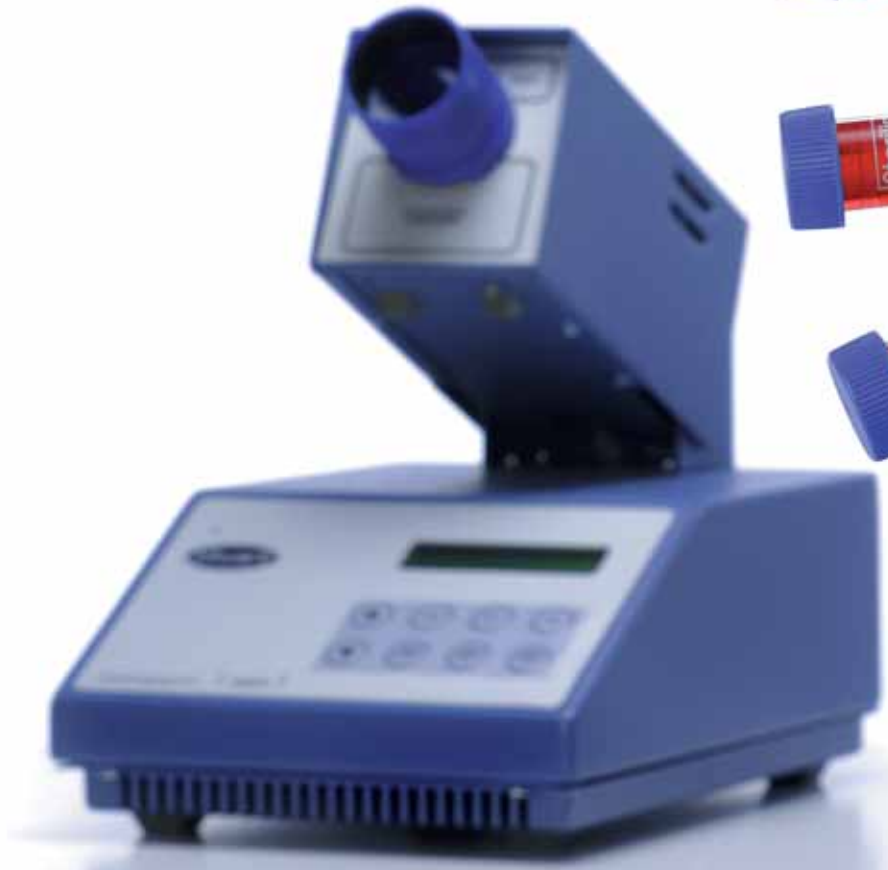
In this edition you will also find a completely new range of rockers and shakers, new melting point apparatus, new energy efficient infrared hotplates and updates to the Stuart® incubator range.

All Stuart® products are designed, manufactured in an ISO9001:2000 environment in our ultra modern factory in Stone, Staffordshire United Kingdom. Every step from new product development to after sales service follows documented and traceable procedures. The result is a quality focused culture committed to total customer satisfaction.

FM13227

All electrical products produced by Stuart conform to the latest safety directives including the European CE requirements. For total compliance, all products are tested and approved by a fully accredited external test house.

All the products featured in this catalog appear on our website at **www.dynalabcorp.com**, where you can also download additional useful information including copies of the multi language instruction manuals, service manuals and copies of the Certificates of Compliance to the EU safety directives.



The products featured in this catalog are available through authorized distributors. For additional information call customer service at 800-334-7585. Technical advice and guidance on product selection is available from qualified scientists and electrical engineers.

Our aim is to provide the very best bench top science equipment as well as the highest level of care, before, during and after the sale. All equipment is covered by a combination **5 year warranty** - 3 years parts & labor plus an additional 2 years of labor.

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Colony Counter

Feature packed and easy to use ...
an indispensable tool for the busy microbiologist

SC6 with SC6/1

Colony counter, SC6

NEW

- Pressure sensitive count system
- Can be used with any probe or felt tip pen
- Digital readout from 0 to 999
- Built-in average count facility
- Audible confirmation of each count
- Choice of light or dark background

Ideal for all microbiology applications, the SC6/120V/60 colony counter provides fast and accurate counting of bacterial and mold colonies.

The SC6/120V/60 colony counter is easy to use. Simply place the Petri dish on the electronic pressure pad and touch the dish with a felt tip pen to mark each colony. The touch pressure causes a count to be registered on the digital display and an audible tone confirms each count made (the sound can be switched on or off as desired). Any suitable implement – a felt tip pen for example – may be used to apply pressure to the dish. The sensitivity required to register a count can be adjusted to suit with an easy to use dial.

This unit can also be used to count multiple plates, and then calculate the average colony count via the built-in averaging facility.

A choice of either white or black background on which to view colonies is available. The black background aids the viewing of difficult, translucent colonies. Two dish centering adapters are provided to enable the use of standard Petri dishes. In addition, the receiver dish may be easily removed for cleaning.

The SC6/120V/60 colony counter is supplied complete with one Wolffhuegel graticule, one segmentation disc and two centering adapters for standard Petri dishes. A choice of magnifiers is available to aid easier counting of smaller colonies.

Technical Specification

Digital display	3 digit LED
Count	0 to 999
Dish size	50 to 100mm
Max plate number to average	99
Dimensions (w x d x h)	310 x 300 x 140mm
	12.2” x 11.8” x 5.5”
Net weight	4lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SC6/120V/60	Colony counter
SC6/1	1.7x magnifier
SC6/1/3	3x magnifier
SC6/2	Wolffhuegel graticule and segmentation discs (pk of 10)
SC6/3	Spare dish centering adapters (pk of 2)
SC6/4	Clear protective discs (pk of 5)
SC6/5	Spare receiver dish

Furnaces, Box

The latest design...
in temperature control technology

ELF 11/6B/301

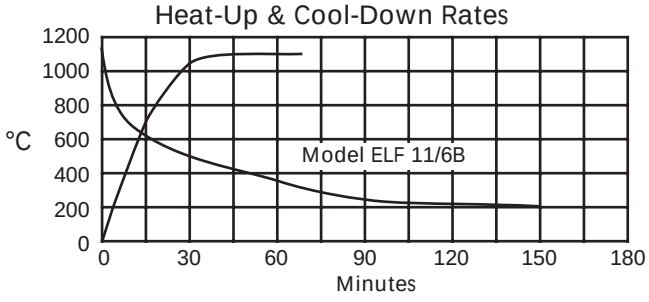
Box furnace, economy 1100°C

- Low cost.
- Two chamber sizes available.
- Excellent chamber uniformity.
- Drop-down door serves as a shelf when loading and unloading samples.
- Positive break door safety switch isolates power to the heating elements when door is opened.
- Fast heat-up enhanced by low mass ceramic fiber chamber
- Long-life heating elements.
- Integral Model 301 PID temperature controller.
- Ideal for light duty applications requiring good thermal response.
- Low outer case temperature provided through double shell construction.
- Dense ceramic hearth provides excellent resistance to wear and spillage.
- Chamber vent provides for process exhaust.
- Small case size conserves bench space.

TYPICAL APPLICATIONS

- Material Testing
- Heat Treating
- Annealing
- Fusions
- Hardening
- Tempering
- Sintering
- Melting
- Curing
- Drying

Heat-Up & Cool-Down Rates



Technical specifications

	ELF 11/6B	ELF 11/14B
Maximum Temperature	1100°C	1100°C
Internal Chamber Dim. (w x d x h)	180 x 210 x 165mm 7.0 x 8.25 x 6.5"	220 x 310 x 210mm 8.75 x 12.25 x 8.25"
TC Type	K	K
Maximum Power kW	2.0	2.6
Furnace Voltage	208/240	208/240
Shipping Weight	62lbs	86lbs
External Dimensions (w x d x h)	410 x 410 x 580mm 16.25 x 16.25 x 22.75"	450 x 520 x 630mm 17.75 x 20.5 x 24.75"

Ordering Information

Model	Description
ELF 11/6B/301	Economy box furnace, 1100°C
ELF 11/14B/301	Economy box furnace, 1100°C

Full line Carbolite furnace catalog available for request at www.carbolite.us

Box furnace, general purpose 1200°C & 1300°C

- Maximum operating temperatures of 1200°C & 1300°C.
- Two chamber sizes available.
- Two high power side heating elements provide enhanced heat-up and chamber uniformity.
- Graded element winding further optimizes chamber uniformity.
- Dense refractory around chamber entrance resists abrasion and wear.
- Chamber vent provides for process exhaust.
- Vertical lift door design keeps hot door insulation away from operator.
- Hard ceramic hearth provides excellent resistance to wear and spillage.
- Low thermal mass insulation improves both energy efficiency and the furnace thermal performance.
- Low outer case temperature provided through double shell construction.
- Positive break door safety switch isolates power to the heating elements when door is opened.
- Small case size conserves bench space.
- Serviceability is aided by furnace mechanical and electrical design.

CWF 12/13/3216P1

Technical specifications

	CWF 12/13	CWF 12/23	CWF 13/13
Max. Temperature	1200°C	1200°C	1300°C
Internal Chamber, mm (w x d x h)	200x325x200 8 x13 x 8"	245x400x235 9.5 x15.7 x9.2"	200x325x200 8 x13 x 8"
TC Type	R	R	R
Max Power kW	3.1	7.0	3.1
Furnace Voltage	208/240	208/240	208/240
Shipping Weight	125lbs	163lbs	125lbs
External Dim., mm (w x d x h)	432x610x655 17 x24 x25.75"	505x673x705 20 x26.5 x27.75"	432x610x655 17 x24 x25.75"

Ordering Information

Model	Description
CWF 12/13/3216P1	General purpose box furnace, 1200°C
CWF 12/23/3216P1	General purpose box furnace, 1200°C
CWF 13/13/3216P1	General purpose box furnace, 1300°C

Note: CWF models above are all stocked with 3216P1 16 segment programmer.

Furnaces operate on single phase electric.

RHF 16/3/3216P1

Box furnace, high temperature 1600°C

- Maximum operating temperature of 1600ºC.
- Heating elements located on both sides of chamber ensure good thermal uniformity.
- Vertical lift door design keeps hot door insulation away from operator.
- Long-life silicon carbide heating elements are resistant to mechanical damage and chemical attack.
- Hard ceramic hearth provides excellent resistance to wear and spillage.
- Low thermal mass insulation improves energy efficiency and heat-up rates.
- Unique feature allows increase of power to the heating elements to always achieve original heat-up performance as elements resistance increases with age.
- Positive break door safety switch isolates power to the heating elements when door is opened.
- Low outer case temperature provided through double shell construction.
- Chamber vent provides for process exhaust.
- Small case size conserves bench space of bench top units.
- Serviceability is aided by furnace mechanical and electrical design.

Technical specifications

	RHF 16/3
Maximum Temperature	1600°C
Internal Chamber Dim. (w x d x h)	120 x 200 x 120mm 4.75 x 8.0 x 4.75”
TC Type	R
Max Power kW	4.5
Furnace Voltage	208/240
Shipping Weight	124lbs
External Dimensions (w x d x h)	435 x 610 x 655mm 17.0 x 24.00 x 25.75”

Ordering Information

Model	Description
RHF 16/3/3216P1	High temperature box furnace, 1600°C

Note: RHF 16/3 is stocked with 3216P1 16 segment programmer.

Furnace operates on single phase electric.

Full line Carbolite furnace catalog available for request at www.carbolite.us

Box furnace, high temperature 1700°C

- Maximum operating temperature of 1700ºC.
- Heating elements located on both sides of chamber ensure good thermal uniformity.
- All Carbolite standard 1700ºC furnaces are fitted with 3216P1 programmer and a separate independent over-temperature protection controller.
- Long-life molybdenum disilicide heating elements are suitable for intermittent or continuous operation.
- Vertical lift door design keeps hot door insulation away from operator.
- Advanced high temperature, high strength hot face insulation is combined with graded low thermal mass insulation to improve energy efficiency and heat-up rates.
- Large diameter heating elements greatly reduce potential for mechanical breakage.
- RS232 digital communications provided as standard.
- Positive break door safety switch isolates power to the heating elements when door is opened.
- Low temperatures of outer case and critical components are provided through fan cooling.
- Molybdenum disilicide element resistance does not change with usage, providing no restriction on placement of a new element in circuit with older elements.
- Chamber vent provides for process exhaust.
- Serviceability is aided by furnace mechanical and electrical design.

HTF 17/5/3216P1

Technical specifications

	HTF 17/5
Maximum Temperature	1700°C
Internal Chamber Dim. (w x d x h)	150 x 225 x 158mm 6.0” x 8.75” x 6.25”
TC Type	B
Max Power kW	4.19
Furnace Voltage	208/240
Shipping weight	247lbs
External Dimensions (w x d x h)	830 x 650 x 565mm 32.5” x 25.5” x 22.25”

Ordering Information

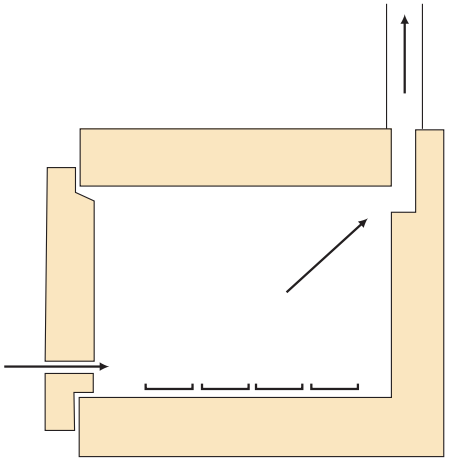
Model	Description
HTF 17/5/3216P1	High temperature box furnace, 1700°C

Note: HTF 17/5 is stocked with 3216P1 16 segment programmer.
Furnace operates on single phase electric.

HIGH TEMPERATURE APPLICATIONS

- Sintering of High Temperature Materials
- Glass Melting
- High Temperature Testing of Ceramics
- Fusion and Firing Processes
- Powder Metallurgy Processes

BWF 11/13/301



APPLICATIONS	SAMPLE MATERIALS
Ashing for Material Analysis Burn-off and Removal of Material for Cleaning	Natural Materials & Fibers Natural Materials & Fibers

Examples of Natural Materials & Fibers: Foods, Grains

Box furnace, ashing and burn-off 1100°C

- Maximum operating temperature of 1100ºC.
- Air inlets located in front of chamber and outlet chimney in rear facilitate natural convective air flow.
- Chamber air flow provides oxygen to enhance ashing or burning process, and removal of exhaust.
- Reduction of carbon build-up is assured by air flow through the furnace chamber.
- BWF high power graded element winding provides enhanced heat-up and improved chamber uniformity.
- Large diameter extended chimney provides for efficient process exhaust.
- Dense refractory around chamber entrance resists abrasion and wear.
- Vertical lift door design keeps hot door insulation away from the operator.
- Positive break door safety switch isolates power to the heating elements when door is opened.
- Low outer case temperature provided through double shell construction.
- Hard ceramic hearth provides excellent resistance to wear and spillage.

Technical specifications

	BWF 11/13
Maximum Temperature	1100°C
Internal Chamber Dim. (w x d x h)	200 x 325 x 200mm 8.0” x 13.0” x 8.0”
TC Type	K
Max Power kW	3.1
Furnace Voltage	208/240
Shipping weight	113lbs
External Dimensions (w x d x h)	435 x 610 x 655mm 17.25” x 24.0” x 25.75”

Ordering Information

Model	Description
BWF 11/13	Burn-off box furnace, 1100°C

Note: BWF 11/13 is stocked with 301 digital controller.

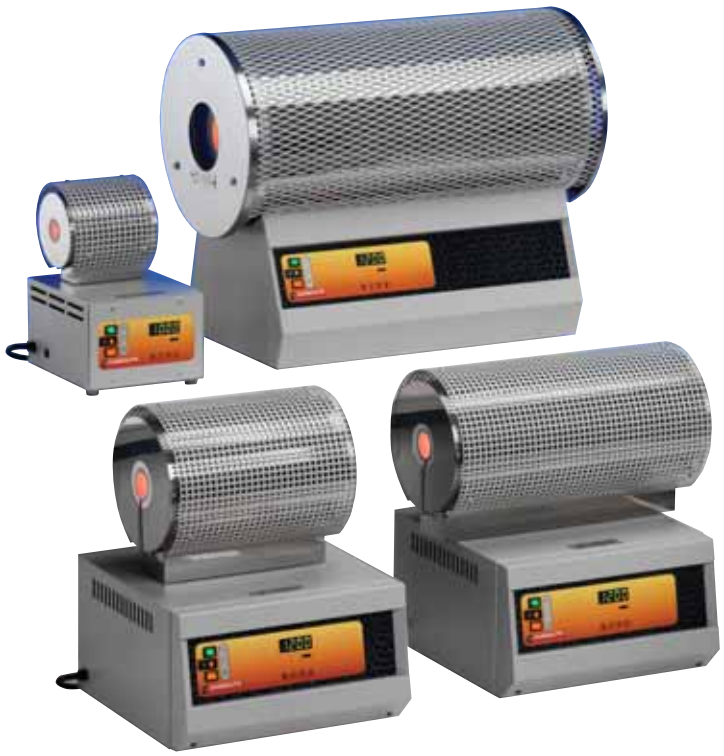
Furnace operates on single phase electric.

Full line Carbolite furnace catalog available for request at www.carbolite.us

Furnaces, Tube

Known worldwide...
for their responsiveness and operational flexibility

or by telephoning the Carbolite US sales office at 800-543-6208.



MTF 10/25/130/301
MTF 12/38/250/301

CTF 12/65/550/301
MTF 12/38/400/301

Tube furnaces, single zone 1000°C & 1200°C

- Maximum operating temperatures of 1000ºC & 1200ºC.
- Select from four standard size wire-wound tube furnaces.
- Rapid heat-up to operating temperature.
- Select from multiple work tube diameters ranging from 1" (25mm) to 2.5" (65 mm).
- Four heated length choices from 5" (130 mm) to 21.5". (550 mm) provide for multiple working and uniformity requirements.
- Integral ceramic work tube with external element winding creates furnace chamber.
- Integral ceramic work tube is convenient and suitable for processing in air.
- Easily slide a separate tube through work tube for processing under atmosphere.
- Furnace incorporates low thermal mass ceramic fiber insulation for improved response times.
- Furnaces are mounted horizontally on a support base or cabinet.
- Thermocouple is located in a protection tube between the chamber work tube and heating element.
- Safety outer mesh guard provides low temperature external surface.
- Furnace controls are built into the supporting base or cabinet, providing convenient observation and access to all power and temperature controls.

Technical specifications

	MTF 10/25/130	MTF 12/38/250	MTF 12/38/400	CTF 12/65/550
Maximum Temperature	1000°C	1200°C	1200°C	1200°C
Work Tube Diameter	25mm (1.0”)	38mm (1.5”)	38mm (1.5”)	65mm (2.5”)
Heated Length	130mm (5.0”)	250mm (10.0”)	400mm (15.75”)	550mm (21.5”)
Overall Length	150mm (6.0”)	300mm (12.0”)	450mm (17.75”)	600mm (23.5”)
TC Type	K	N	N	N
Max Power kW	0.4	1.0	1.5	2.0
Furnace Voltage	120	120	208/240	208/240
Shipping weight	22lbs	38lbs	44lbs	80lbs
External Dimensions (w x d x h)	150 x 175 x 265mm 6.0” x 6.75” X 10.5”	370 x 375 x 430mm 14.5” X 14.75” X 17.0”	450 x 375 x 430mm 17.75” X 14.75” X 17.0”	625 x 360 x 525mm 24.5” X 14.25” X 20.75”

Ordering Information

Model	Description
MTF 10/25/130/301	Single Zone Wire-Wound Tube Furnace, 1000°C
MTF 12/38/250/301	Single Zone Wire-Wound Tube Furnace, 1200°C
MTF 12/38/400/301	Single Zone Wire-Wound Tube Furnace, 1200°C
CTF 12/65/550/301	Single Zone Wire-Wound Tube Furnace, 1200°C

Note: All furnaces are stocked with a 301 digital controller.
Furnaces operate on single phase electric.

Full line Carbolite furnace catalog available for request at www.carbolite.us

Tube furnace, horizontal split-hinge 1200°C

HST 12/86/400/301

- Maximum operating temperature of 1200ºC.
- Split-hinge design allows for convenient process observation, enhanced cooling, and easy fixturing of the process tube.
- Designed to accept process tubes up to 4" OD (100 mm).
- Insulating end vestibules improve chamber uniformity and incorporate interchangeable tube adapters.
- These tube adapters allow easy conversion to different diameter process tubes.
- Long-life free radiating heating element design provides excellent radial and linear chamber uniformity.
- High efficiency low mass vacuum formed ceramic fiber insulation enhances heat-up and recovery rates.
- Positive break furnace safety switch isolates power to the heating elements when furnace is opened.
- Low outer case temperature provided through double shell construction.
- Carbolite hinged tube furnaces are designed for bench mounting, and are interconnected to a separate control cabinet with a 6 foot cable.

Technical specifications

	HST 12/400
Maximum Temperature	1200°C
Maximum O.D. Tube	100mm (4”)
Heated Length	400mm (15.75”)
TC Type	N
Max Power kW	2.0
Furnace Voltage	208/240
Shipping weight	88lbs
External Dimensions (w x d x h)	550 x 410x 350mm 21.5” x 16.25” x 13.75”

Ordering Information

Model	Description
HST 12/400	Horizontal split-hinge tube furnace, 1200°C

Note: HST 12/400 is stocked with 301 digital controller.

Furnace operates on single phase electric.

Tube adapters provided with furnace are bored to accept a 4” O.D. process tube

STF 15/450/3216P1/OTC

Tube furnace, single zone 1500°C

- Maximum operating temperature of 1500ºC.
- Furnaces incorporate low thermal mass ceramic fiber insulation for improved heat-up rates.
- Long-life free radiating silicon carbide heating elements provide excellent radial and linear chamber uniformity.
- Furnace control system is fitted with 3216P1 programmable temperature control and a separate independent over-temperature protection controller.
- Power may be easily increased to heating elements from the temperature controller to compensate SiC element resistance change (aging). This feature assures that furnace original heat-up characteristics and maximum rated temperature is always achieved.
- Furnace is mounted horizontally on an integral support base or cabinet.
- Furnace controls are built into the support base, providing convenient observation and access to all power and temperature controls.
- Insulating end vestibules improve chamber uniformity.
- Safety outer mesh guard provides low temperature external surface.

Technical specifications

	STF 15/450
Maximum Temperature	1500°C
Maximum O.D. Tube	90mm (3.5”)
Heated Length	450mm (17.75”)
TC Type	R
Max Power kW	5.5
Furnace Voltage	208/240
Shipping weight	100lbs
External Dimensions (w x d x h)	830 x 445 x 660mm 32.75” x 17.5” x 26.0”

Ordering Information

Model	Description
STF 15/450/3216P1/OTC	Single zone tube furnace, 1500°C

Note: STF 15/450 is stocked with 3216P1 16 segment programmable control and over-temperature protection control.

Furnace operates on single phase electric.

Furnace end vestibules are bored to accept a 3.5” O.D. process tube.

Hotplates

Outstanding range of options....
the number one choice for the budget conscious laboratory

CB300/120V/60

Hotplates, large capacity, CB300

- Large square plate area ideal for heating one large vessel or several smaller ones
- Accommodates vessels up to 10 liter capacity
- Hotplate temperature controlled by easy to use dial
- Fitted with a "Hot" warning light which will flash whenever the plate temperature is above 50°C and will operate even when the hotplate is turned off and connected to the outlet.

Model CB300/120V/60 has a glass ceramic top which has excellent chemical resistance and allows much higher plate temperature.

Technical specification

	CB300/120V/60
Plate material	Glass ceramic
Plate dimensions, mm (inches)	300 x 300 (11.8” x 11.8”)
Heated area, mm (inches)	200 x 200 (7.9” x 7.9”)
Heater power, W	1200
Max. plate temp. °C	450
Overall dimensions (w x d x h)	300 x 365 x 105mm 11.8” x 14.4” x 4.1”
Net weight	14lbs
Electricity supply	120V, 60Hz

Ordering Information

Model	Description
CB300/120V/60	Hotplate, ceramic top, analogue

Hotplates, large capacity, SB500

- Large plate area ideal for heating multiple vessels
- Accommodates up to 30 x 100ml beakers

These large rectangular shaped hotplates are ideal for heating many smaller vessels simultaneously, e.g. in educational use where lots of students require their samples heated at the same time.

An easy to use knob located on the front of the hotplate controls the top plate temperature. The robust side arms make the unit very easy to carry.

The large surface area may stay hot for a long time after use, so for maximum safety, a bright red hot warning light will continue to flash until the hotplate is cool.

Model SB500/230V/50 has an aluminum / silicon alloy top plate. This material has very good conductive properties so will give a very even plate temperature. This means all samples, no matter where they are placed on the hotplate, will be subjected to the same conditions for excellent uniformity and reproducibility.

SB500/230V/50

Technical specification

	SB500/230V/50
Plate material	Al/Si alloy
Plate dimensions, mm (inches)	300 x 500 (11.8” x 20”)
Heated area, mm (inches)	300 x 500 (11.8” x 20”)
Heater power, W	1500
Max. plate temp. °C	300
Overall dimensions (w x d x h)	520 x 360 x 130mm 20.5” x 14.2” x 5.1”
Net weight,	27lbs
Electricity supply	230V, 50-60Hz

Ordering Information

Model	Description
SB500/230V/50	Hotplate, metal top, analogue

Please note: SB500/230V/50 is not available in 110V/60

CR300

Hotplate, infrared, ceramic, CR300

NEW

- Very efficient heating saving time and energy
- Chemically resistant ceramic top
- "Hot" warning light for user safety

Using a very efficient infra red heater of just 900W power this hotplate will boil 1 liter of water over 30% faster than a conventional ceramic hotplate of 1200W. Ideal for heating large volumes of liquid.

Technical specification

	CR300/230/50
Plate dimensions, mm (inches)	300 x 300 (11.8" x 11.8")
Heated area, mm (inches)	140 diameter (5.5")
Heater power, W	900
Overall dimensions, (w x d x h)	300 x 365 x 105mm 11.8" x 14.4" x 4.1"
Net weight	9lbs
Electricity supply	230V, 50-60Hz

Ordering Information

Model	Description
CR300/230V/50	Hotplate, infra red

Please note: CR300/230V/50 is not available in 110V/60

stuart® 5 YEAR TOTAL WARRANTY

3 years parts & labor/2 additional years labor

Incubators

Growth business...
high performance at budget prices

SI50/120V/60

Incubator, with orbital shaker, SI50

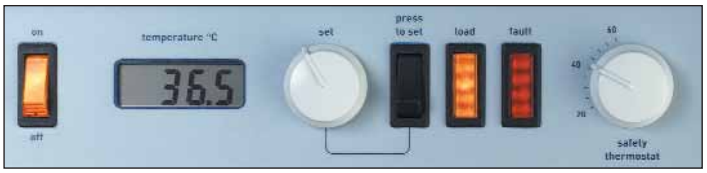
- Combined incubator and shaker
- Forced air circulation up to 60°C
- Digital set and display of temperature
- Over-temperature cut-out
- Shaker accepts most sizes and mixtures of flasks
- Electronic speed control with soft start

This combined incubator and orbital shaker has been designed to provide controlled and uniform conditions for biological growth. The compact unit has smoked acrylic side panels and door for visibility of flasks during incubation.

Forced air circulation ensures uniform heating of the load. The desired temperature is easily set and accurately monitored via a digital display. For extra protection of samples, the incubator is fitted with an adjustable safety temperature cut-out.

The shaker has a versatile clamping system which secures most sizes and mixtures of flasks up to 2 liter capacity. Four securing bars covered in soft rubber can be adjusted vertically and horizontally to suit. Typically, the platform will accommodate the following Erlenmeyer flasks: 9 x 250 ml, or 6 x 500 ml or 4 x 1000 ml or 1 x 2000ml.

Shaker speed is variable and has electronic feed-back control to accurately maintain set speeds. Shaking action is automatically halted when the door is open for maximum user safety.



SI50 facia

Technical Specification

Temperature range	Ambient + 5°C to 60°C
Temperature display resolution	0.1°C
Temperature fluctuation	± 0.5°C
Speed range	20 - 250 rpm
Orbit diameter mm (inches)	16 (0.63”)
Platform size mm (inches)	310 x 310 (12.2” x 12.2”)
Internal height mm (inches)	321 (12.6”)
Maximum load, lbs	44
Overall dimensions (w x d x h)	450 x 436 x 606mm
	17.7” x 17.2” x 23.9”)
Net weight	62lbs
Electrical supply	120V, 60Hz

Ordering Information

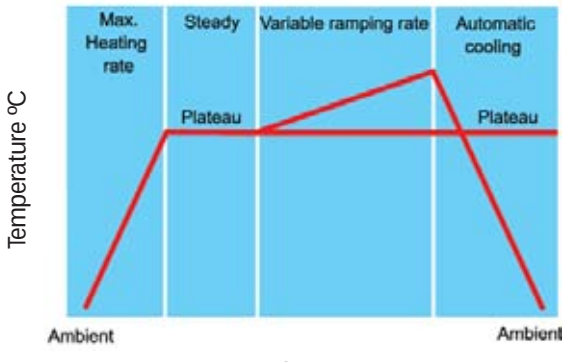
Cat No.	Description
SI50/120V/60	Incubator, orbital shaker
RSI50	Spare securing bars covered in soft rubber

Melting Point Apparatus

Pure simplicity...
an unbeatable specification for reliability

SMP3/120V/60

SMP3/120V/60 facia



Melting point apparatus, advanced, SMP3

- Maximum temperature 360ºC
- Programmable heating rates
- Melt temperature memory
- Automatic cooling and user friendly display
- Supplied with calibration certificate

Designed for fast and accurate measurement of melting points. The heating block accommodates up to three samples and incorporates a platinum resistance sensor for responsive temperature control.

A membrane key pad allows easy setting of the desired start temperature and heating ramp rates (fully adjustable from 0.5ºC to 10ºC per minute). in 0.1ºC increments.

The user friendly backlit alphanumeric LCD display advises both the temperature and the specific stage of operation. Language is switchable between English, French, German, Italian and Spanish.

Clear observation of the samples and melt process is aided by a powerful magnifying lens and high intensity illumination.

When measurements of melt are being made, the temperatures may be stored in the instrument's memory by pressing the storage buttons. The values can then be recalled at a convenient time.
Once the heating cycle is completed, an integral air pump quickly cools the heating block so that the next series of tests can be commenced promptly.

Supplied complete with calibration certificate showing individual serial number for traceability.

Technical Specification

No of samples	3
Temperature range	Ambient to 360ºC
Temperature resolution	0.1ºC
Temperature accuracy	±0.5ºC at 20ºC, ±1.5ºC at 360ºC
Display	LCD
Sensor	Platinum resistance PT100
Ramp rates	0.5ºC - 10ºC per min in 0.1ºC increments
Temperature memories	8 per tube
Dimensions (w x d x h)	180 x 260 x 300mm 7.1" x 10.2" x 11.8"
Net weight	7lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SMP3/120V/60	Melting point apparatus, complete with pack of 100 melting point tubes, closed at both ends
SMP2/1	Glass melting point tubes, closed at both ends, pack of 100

Melting point apparatus, digital, SMP10

- Digital selection & display of temperature
- High accuracy
- Easy to operate with plateau facility
- Ideal for educational use
- Supplied with calibration certificate & 100 capillary tubes

The SMP10/120V/60 has been designed with safety and ease of operation in mind making it ideal for use in education. The temperature is selected, measured and displayed digitally making it accurate and negating the need for a thermometer.

Two samples can be tested simultaneously. They are viewed via a magnifying lens with clear observation aided by built in illumination. Extendible back feet allow the unit to be operated at the optimum viewing angle. Full access to the block aids cleaning.

The simple to follow instructions are printed on supplied clear labels in most European languages for ease of use. To operate simply select a plateau temperature via the three digit display and press 'start'. The unit quickly heats up and remains at the selected plateau temperature until the user is ready to start the test. Insert the sample tubes and press 'start'. The unit then heats slowly so that the melt can be observed. When the sample is seen to melt, note the temperature on the display. Press 'stop' to end heating and cool the block.

Supplied complete with calibration certificate showing individual serial number for traceability.

SMP10/120V/60

SMP10/120V/60 facia

Technical Specification

Number of samples	2
Temperature range	Ambient to 300°C
Temperature accuracy	± 1.0°C at 20°C
	± 2.5°C at 300°C
Display	Three digit LED
Display resolution	1ºC
Sensor	Platinum resistance PT100
Ramp rates	20°C per minute to plateau
	2°C per minute to melt
Dimensions (w x d x h)	160 x 220 x 170mm
	6.3" x 8.6" x 6.7"
Net weight	4lbs
Electrical supply	120V, 60Hz

Ordering Information

Cat No.	Description
SMP10/120V/60	Melting point apparatus, complete with pack of 100 melting point tubes, closed at one end.
SMP10/1	Glass melting point tubes, closed at one end, pack of 100.

SMP11/120V/60

Safer, easy to use
"NO MERCURY thermometer"

Melting point apparatus, analogue, SMP11

NEW

- Easy to operate - ideal for educational use
- Supplied with safe spirit filled thermometer
- Economical price

The SMP11/120V/60 measures the melting point of chemicals from ambient to 250°C. Samples need to be placed in a sealed end capillary tube and located in the heating block. Up to three tubes can be tested at one time. The heating rate can be adjusted manually between 200C/min, for rapid heating and 10C/min, to obtain an accurate melting point range.

The sample and melt process can be viewed via the magnifying lens, which is illuminated by bright LED's. Record the melt temperatures from the thermometer, positioned horizontal to the samples to allow simultaneous viewing. The thermometer is filled with low toxic spirit making it completely safe in the event of a breakage. The lens can be detached for cleaning and simple to follow instructions are printed directly onto the unit, making it very easy for students to use.

Technical Specification

No. of samples	3
Maximum temperature	Ambient to 250°C
Heating rate	1 to 20°C/min
Dimensions (w x d x h)	370 x 140 x 110 mm
	14.6" x 5.5" x 4.3"
Net weight	4lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SMP11/120V/60s	Melting point Apparatus, complete with thermometer and pack of 100 melting point tubes (open both ends)
SMP11/1	Spare thermometer, spirit filled, 0°C to 250°C
SMP1/2	Cooling plug (brass) for rapidly reducing heating block temperature after use

Melting point tubes

Made from soda glass, these tubes are easy to seal in a Bunsen flame and break into two. Supplied in robust tube holder, pack of 100 tubes. Tube overall length is 100mm Tube diameter = 1.9mm, inner diameter = 1.3mm and wall thickness = 0.3mm.

Ordering information

Cat. No.	Tube type
SMP1/4	Open both ends
SMP2/1	Sealed both ends
SMP10/1	Sealed at one end

Mixers

Good vibrations....
the stylish and affordable option for fast and thorough mixing

SA8/120V/60

Mixer, vortex, variable speed, SA8

- Variable speed control between 200 and 2500 rpm
- Intermittent or continuous mode
- Stable low profile body
- Robust die-cast construction

Mixing speed can be selected from 200rpm for very gentle mixing to 2500rpm for vigorous agitation. Choose between 'touch' mode or continuous operation simply by pressing a button on the facia.

Robust die-cast body avoids unnecessary movement during use. The ergonomic low profile design makes everyday vortexing comfortable for the user.

Integral retort rod fixing allows vessels to be secured above the vortex action for long-term mixing.

The SA8/120V/60 can mix a variety of other vessels when used in conjunction with the SA8/1 accessory pack detailed below.

Technical Specification

Speed	200 to 2500rpm
Orbit diameter	4.2mm
Touch mode	Yes
Continuous mode	Yes
Dimensions (w x d x h)	135 x 215 x 78mm 5.3" x 8.5" x 3.0"
Net weight	7lbs
Electrical supply	120V / 60Hz

Ordering Information

Model	Description
SA8/120V/60	Vortex mixer, variable speed
SR2	Retort rod, 300mm x 12.5mm diameter

SA8 with cradle

Accessory pack

For use with SA8/120V/60 above, pack contains:

1 x plastic cradle for standard microtitre plate
1 x circular foam insert for beakers and flasks (up to 500ml capacity)
1 x rectangular foam insert
(holds 8 x 0.2ml, 8 x 0.5ml and 16 x 1.5ml microcentrifuge tubes)
1 x solid rectangular foam insert (blank for custom holes)

Ordering Information

Model	Description
SA8/1	Accessory pack (for use with SA8/120V/60 only)

Ovens

"Making heat do more"...
time tested, quality proven heat processing equipment

Full line Carbolite furnace and oven catalog is available for request at www.carbolite.us or by telephoning the Carbolite US sales office at 800-543-6208.

PF 30/300

Oven, laboratory 300°C

- Four oven chamber sizes to choose from.
- Mechanical convection designs.
- 300ºC (572ºF) maximum operating temperature.
- Temperature stability of ±1ºC.
- Chamber air circulation provides excellent temperature uniformity.
- Polished stainless steel inner chamber is easy to clean and resistant to corrosion.
- Each oven is provided with two non-tilt nickel plated shelves with multi-position settings for convenient loading and unloading.
- Long-life mineral insulated metal sheathed heating elements.
- Fast heat-up and recovery rates.
- Digital temperature controller will display either setpoint or process temperatures.
- Adjustable from control panel, chamber ventilation and exhaust vent is provided in rear wall.
- Side mounted control panel avoids damage from accidental spillage.
- Efficient fibrous insulation ensures cool outer case temperatures.
- Side hinged door provides access to full width of chamber when open
- Lever action of flush fitting door latch ensures gentle closure and provides a handle when unlatched
- Long-life mechanical design is also aesthetically attractive in today's modern laboratory

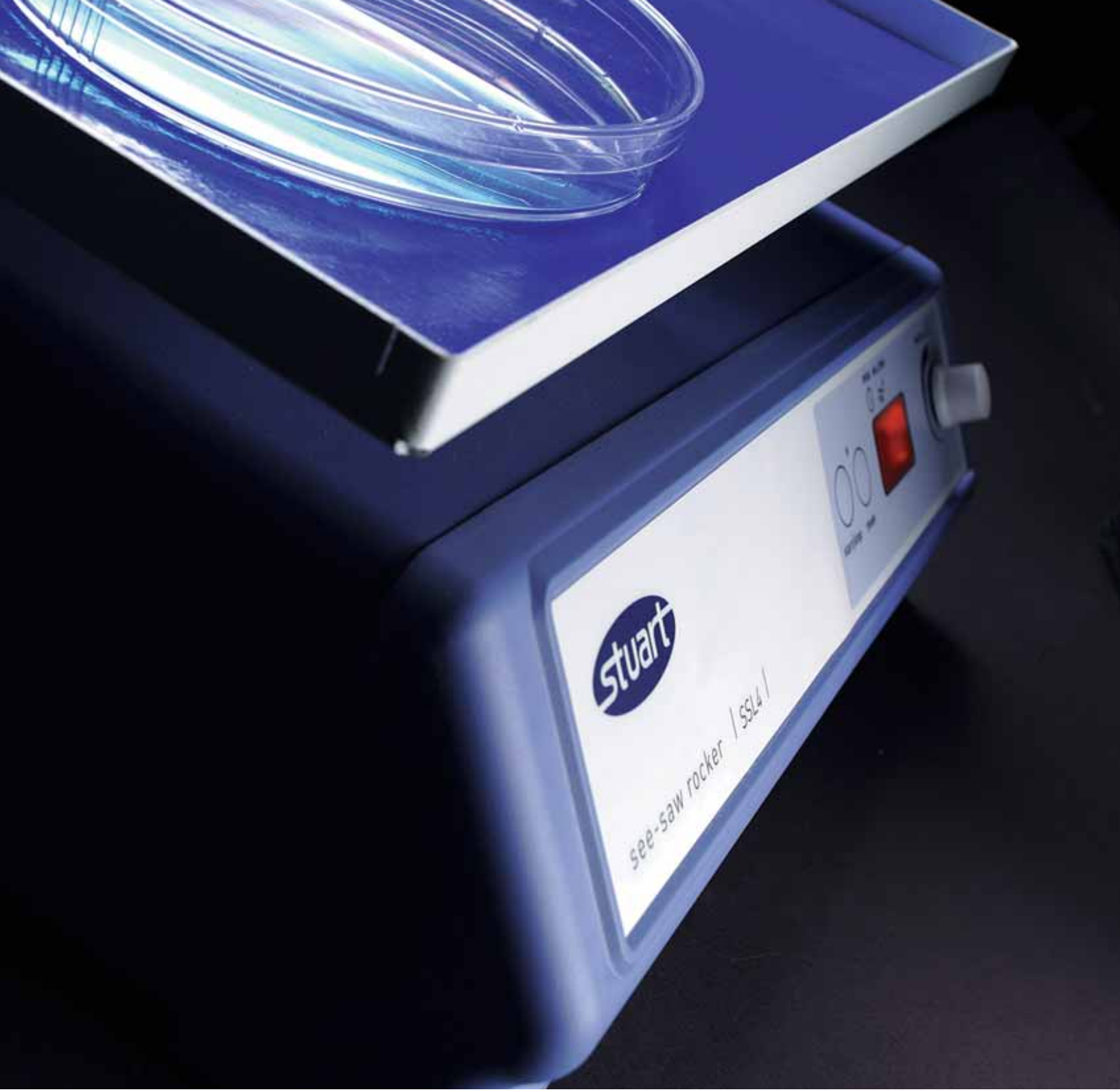
Technical specifications

	PF 30	PF 60	PF 120	PF 200
Maximum Temperature	300°C	300°C	300°C	300°C
Internal Chamber Dim.	292 x 320 x 300mm	392 x 420 x 400mm	492 x 520 x 500mm	592 x 520 x 750mm
(w x d x h)	11.5” x 12.5” x 11.75”	15.25” x 16.5” x 15.75”	19.25” x 20.5” x 19.5”	23.25” x 20.5” x 29.5”
Holding Power at Max Temp	.35kW	.60kW	.80kW	1.25kW
Temp Uniformity at Max Temp	+/- 1.0	+/- 1.0	+/- 1.0	+/- 1.0
Temp Stability Control °C	+/- 1.0	+/- 1.0	+/- 1.0	+/- 1.0
Heat-Up Time minutes	4.5 to 100°C	4.5 to 100°C	4.5 to 100°C	5.5 to 100°C
	12 to 200°C	12 to 200°C	12 to 200°C	14 to 200°C
	25 to 300°C	25 to 300°C	25 to 300°C	30 to 300°C
Recovery Time minutes	1 at 100°C	1 at 100°C	1 at 100°C	1.5 at 100°C
(Door open 60 sec)	2.5 at 200°C	2.5 at 200°C	2.5 at 200°C	3 at 200°C
	4 at 300°C	4 at 300°C	4 at 300°C	5 at 300°C
Max Power kW	1.0	1.5	2.0	2.7
Oven Voltage	120	120	208/240	208/240
Shipping weight	82lbs	128lbs	175lbs	227lbs
External Dimensions (w x d x h)	665 x 520 x 470mm 26.25” x 20.5” x 18.5”	765 x 620 x 570mm 30.0” x 24.5” x 22.5”	865 x 720 x 670mm 34.0” x 28.5” x 26.5”	965 x 720 x 920mm 38.0” x 28.5” x 36.25”

Note: All ovens are stocked with a Model 300 digital temperature controller.
Ovens operate on single phase electric.

Ordering Information

Model	Description
PF 30/300	Laboratory Oven, 300°C
PF 60/300	Laboratory Oven, 300°C
PF 120/300	Laboratory Oven, 300°C
PF 200/300	Laboratory Oven, 300°C



Rockers

Maximum control, minimum fuss...
rock solid performers at affordable prices

SSM3/120V/60 & SSM3/1

SSM4/120V/60

Rockers, mini, SSM3 & SSM4

NEW

- Small space saving design - ideal for personal use
- Gentle rocking action
- Choice of two models:
  - 3D gyratory action SSM3/120V/60
  - See-saw wave action SSM4/120V/60
- Digital speed control and built-in timer
- Optional tier system available to increase capacity

These compact rockers are ideal where gentle mixing is required, either on the bench or in incubators. Choice of two models:

Model SSM3/120V/60 provides a 3D gyratory motion, ideal for low foaming agitation, DNA extractions, staining and de-staining procedures etc. The angle of tilt can be moved to any position by hand to optimize mixing of vessels.

Model SSM4/120V/60 has a see-saw rocking action that creates a wave motion within vessels such as culture flasks, Petri dishes etc.

Digital selection of both speed and time facilitates accurate and reproducible conditions. Both parameters are controlled via an easy to use encoder control knob and displayed on the bright LED display. Both models are supplied with a non-slip mat which holds flat based vessels securely in place during mixing. An accessory tier system can be fitted in seconds, without the need for tools, tripling the available space for samples. Each tier is securely held in place by magnets.

Technical Specification

	SSM3/120V/60	SSM4/120V/60
Rocking action	3D gyratory	See-saw wave
Platform dimensions (w x l)	235 x 235mm 9.25" x 9.25"	235 x 235mm 9.25" x 9.25"
Speed range	5 to 70rpm	5 to 70rpm
Angle of tilt	3 to 12°	7°
Angle adjustable	Yes by hand	No
Maximum load, lbs	6.6	6.6
Overall dimensions, mm (w x d x h)	240 x 300 x 165 9.5 x 11.8 x 6.5"	240 x 300 x 150 9.5 x 11.8 x 5.9"
Operational temp. range	+4 to +40°C	+4 to +40°C
Maximum permissible humidity	80%	80%
Net weight	11lbs	11lbs
Electrical supply	120V, 60Hz	120V, 60Hz

Ordering Information

Model	Description
SSM3/120V/60	Rocker, gyratory, mini
SSM4/120V/60	Rocker, see-saw, mini
SSM3/1	Tier system (2 platforms plus 8 bar) (fits both models)

Rockers, lab scale, SSL3

NEW

- Large platform rockers – ideal for multiple users
- Gentle rocking action
- Digital speed control and built-in timer
- Optional tier system available to increase capacity

These rockers have large platforms able to accommodate a number of samples, ideal for a busy lab. They are very quiet in operation and designed to run continuously.

Model SSL3/120V/60 provides a 3D gyratory motion, ideal for low foaming agitation, DNA extractions, staining and de-staining procedures etc. The angle of tilt can be moved to any position by hand to optimize mixing of vessels.

Rockers are often used in conjunction with incubators and environmental chambers. Units can be used in temperatures up to 40°C and humidity up to 80% and are supplied with a non-slip mat. They have digital selection of both speed and time making operation very easy. An accessory tier system can be fitted in seconds, without the need for tools, tripling the available space for samples. Each tier is securely held in place by magnets.

SSL3/120V/60

SSL4/120V/60 (not available) shown with SSL3/1

Technical Specification

	SSL3/120V/60
Rocking action	3D gyratory
Platform dimensions (w x l)	355 x 355mm
	14" x 14"
Speed range	5 to 70 rpm
Angle of tilt	3 to 12°
Angle adjustable	Yes by hand
Maximum load	22lbs
Overall dimensions, (w x d x h)	360 x 420 x 170mm 14.2" x 16.5"x 6.7"
Operational temp. range	+4 to +40°C
Maximum permissible humidity	80%
Net weight	22lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SSL3/120V/60	Rocker, gyratory, lab scale
SSL3/1	Tier system (2 platforms plus 8 bars)

Key to symbols

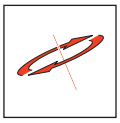
Barloworld Scientific Laboratory Group US offers a variety of benchtop instruments to provide the necessary rocking, rolling rotating or shaking action for your application.

The symbols shown here are used throughout this catalog to describe the unique characteristics of each motion.

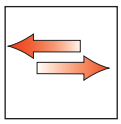
Gyratory motion
The platform moves in a three-dimensional motion.

Orbital action
The platform moves in a circular orbit.

Rocking motion
The platform rocks on a central pivot.



Rotating motion
Platform revolves at a tilted angle.



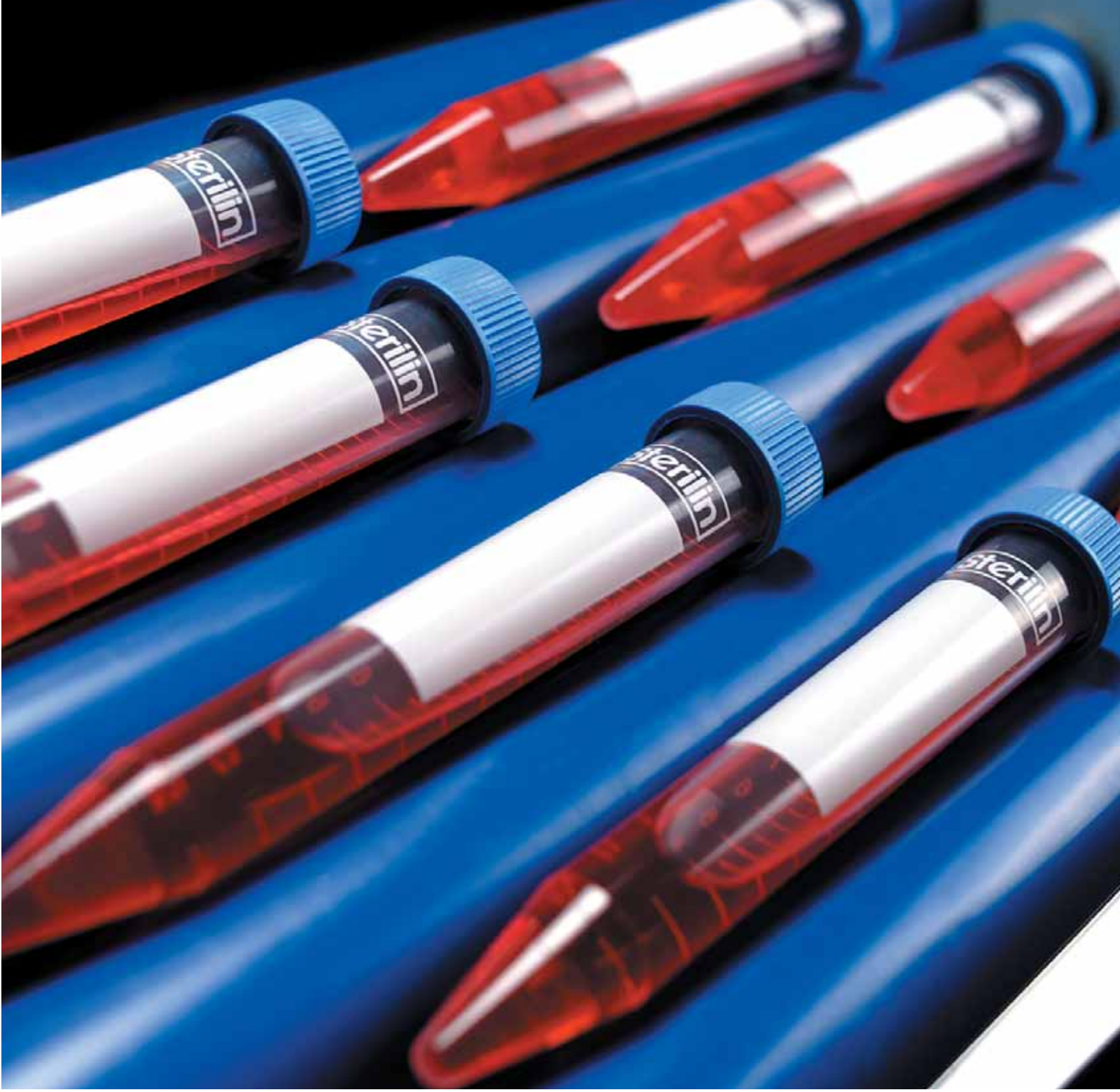
Reciprocating action
The platform moves back and forth horizontally.

Vortex motion
The cup generates a ‘whirlpool’ vortex action.

Pivot motion
Simulates a vigorous shaking action.

Rotative motion
Unit revolves around a fixed point.

Timer
Allows shaking times to be pre-set.



Rollers

Rock and roll...
complete mixing for a variety of vessels, dishes and plates

SRT1/120V/60

Rollers, SRT1 & SRT2

- Rocking and rolling action for complete mixing
- Ideal for mixing blood samples
- Removable rollers to accommodate large bottles
- Designed for continuous operation
- Choice of two sizes, 5 rollers or 10 rollers

These two roller mixers provide a gentle, but highly efficient, rocking and rolling action.

The rollers rotate at 33 rpm and rise and fall 16mm.

Recommended for mixing blood samples, viscous substances and liquid-solid suspensions where minimum aeration is required. Units can be used in incubators up to 60ºC and humidity up to 80%, or in cold rooms down to 4ºC.

Both roller mixers are robustly constructed and designed for easy cleaning, having plastic rollers and a stainless steel drip tray to collect accidental spillages.

Most sizes of tubes, Bijoux, Universals and bottles can be accommodated. For large capacity bottles (up to 135mm diameter), one or more of the rollers are easily removed to give improved grip.

Similarly, it is possible to quickly convert the units to provide a 'roll only' action and function as a simple bottle roller.

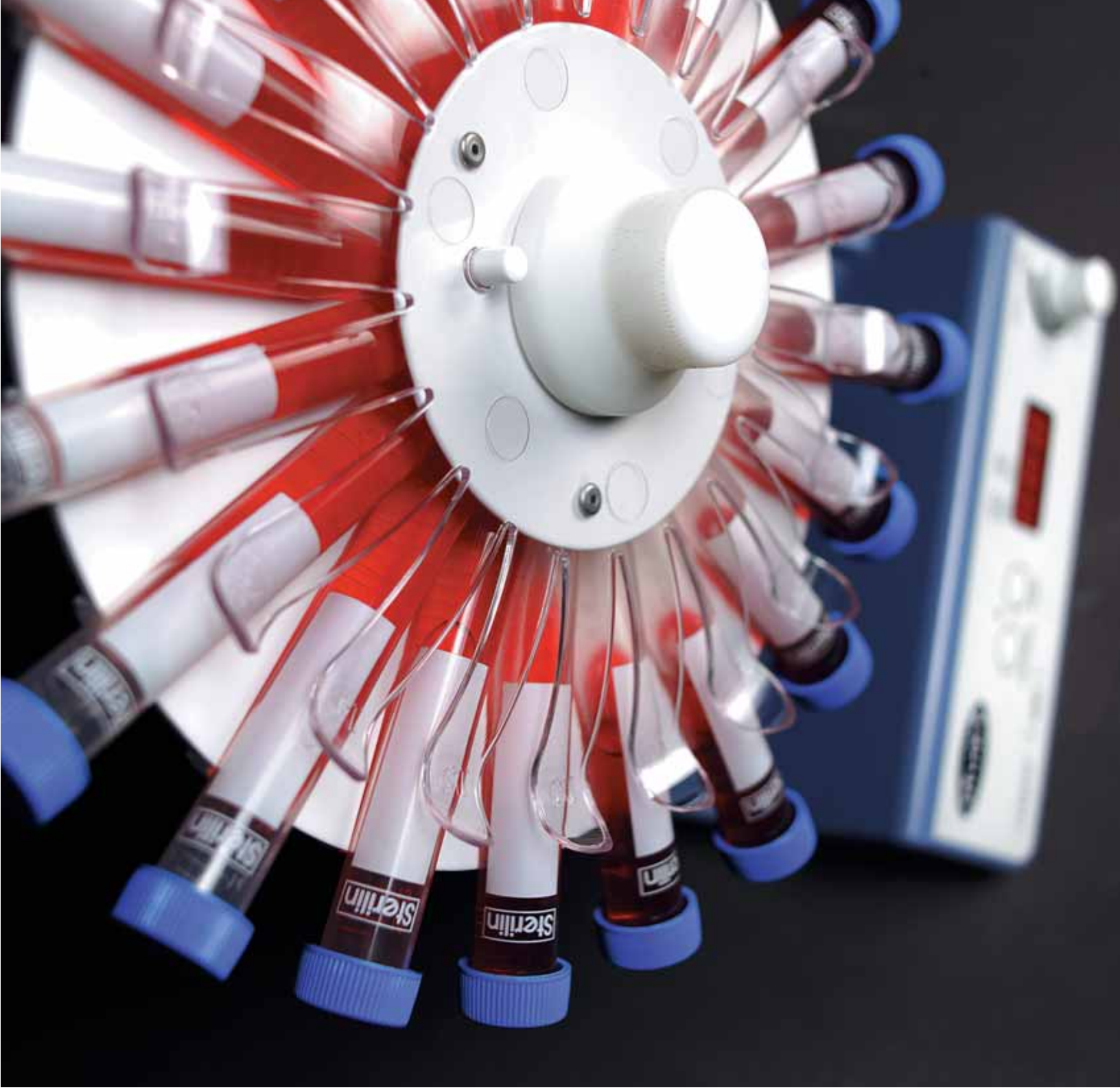
SRT2/120V/60

Technical Specification

	SRT1/120V/60	SRT2/120V/60
No. of rollers	5	10
Speed	33 rpm	33 rpm
Amplitude	16mm	16mm
Max. load	22lbs	22lbs
Roller size	340 x 30mm	340 x 30mm
(length x diameter)	13.4" x 1.2"	13.4" x 1.2"
Overall dimensions	500 x 200 x 90mm	500 x 380 x 90mm
(w x d x h)	19.7 x 7.9 x 3.5"	19.7 x 15.0 x 3.5"
Net weight	11lbs	16lbs
Electrical Supply	120V, 60Hz	120V, 60Hz

Ordering Information

Model	Description
SRT1/120V/60	Roller mixer, 5 rollers
SRT2/120V/60	Roller mixer, 10 rollers



Rotators

Good turns...
simple and efficient sample rotation in almost any type of vessel

SB2/120V/60 & SB3/2

Rotator, fixed speed, SB2

NEW

- Fully adjustable mixing angle
- Constant speed of 20 rpm
- Choice of tube holders to hold a number of different sized tubes
- Simple on/off control switch
- Spillage tray

The SB2/120V/60 gives gentle but effective mixing, ideal for keeping biological samples in suspension e.g. blood. The rotator can be used in incubators up to 60ºC and in cold rooms down to 4ºC.

The rotator has a constant speed of 20 rpm and the angle of rotation is fully adjustable, from horizontal for minimal mixing to vertical for full end-over-end mixing.

An integral tray catches any spillage from the rotating tubes. A choice of six tubes holders are available to fulfill most applications.

Holder must be ordered separately (see below).

Technical Specification

Speed range	Fixed – 20 rpm
Dimensions (w x d x h)	200 x 270 x 230mm
	7.9” x 10.6” x 9.0”
Net weight	7lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SB2/120V/60	Rotator, fixed speed

Tube holders

- Choice of six types
- Quick and easy loading and removal of tubes
- End-over-end or rolling action

Ordering Information

Model	Description	Tube diameter	Max. no. of tubes
End-over-end action			
SB3/1	Micro tube holder	10 to 11.5 mm	40
SB3/2	Test/blood tube holder	9 to 20mm	20
SB3/3	50ml centrifuge tube holder	25 to 35 mm	12
Rolling action			
SB3/4	Culture tube holder	12mm	63
SB3/5	Culture tube holder	16mm	63
SB3/6	Culture tube holder	26mm	30

Rotator, variable speed, timer, SB3

NEW

- Fully adjustable mixing angle
- Variable speed
- Digital timer
- Choice of tube holders to hold a number of different sized tubes
- Spillage tray

The SB3/120V/60 is ideal for aerating cultures, keeping biological samples in suspension and for general mixing applications.

The rotator can be used in incubators up to 60ºC and in cold rooms down to 4ºC.

The rotator has a variable speed of 2 to 40 rpm for gentle rolling or vigorous mixing of samples and the angle of rotation is fully adjustable, from horizontal for minimal mixing to vertical for full end-over-end mixing.

A digital timer and speed display allow procedures to be accurately repeated for optimal results.

A tray catches any spillage from the rotating tubes.

A choice of six tubes holders are available to fulfill most applications. **Holder must be ordered separately (see page 38).**

SB3/120V/60 and SB3/4

Technical Specification

Speed range	2 to 40rpm
Speed control	Digital
Timer	1 to 999 minutes
Net weight	7lbs
Dimensions (w x d x h)	200 x 270 x 230 mm
	7.9” x 10.6” x 9.0”
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SB3/120V/60	Rotator, variable speed, timer

SB3/120V/60 facia

stuart®

5 YEAR TOTAL WARRANTY

3 years parts & labor/2 additional years labor

Barloworld Scientific Laboratory Group US is so confident in the superior quality of our Stuart® line of science equipment that we are willing to offer as standard a 5 year warranty (3 years parts & labor and 2 additional years labor).

Barloworld Scientific's ultra-modern manufacturing facility at Stone houses a research and development facility committed to constant product improvements and innovation.

We make one of the most comprehensive ranges of benchtop equipment available, including water purification equipment and ceramic top hotplates and stirrers.

The Merit® water still and the SMP10 Melting Point Apparatus are just two of the well established brands which maintain a deserved reputation as market leaders.

The Stuart® range comprises over 100 products including block heaters, blood tube rotators, colony counters, hotplates, hybridization ovens, rockers, shakers, stirrers and water baths.

Contact our customer service department at 800 334 7585 for further information.

Shakers

Movers and shakers...
an action for every type of application

SSM5/120V/60

SSM5/120V/60 with SSM5/1

Shaker, microtitre, mini, SSM5

NEW

- High speed vibrational mixing action - ideal for microtitre plates
- Digital selection of mixing speed
- Built-in digital timer or continuous operation
- Optional tube holders available for mixing microcentrifuge tubes

Designed for use with microtitre plates and microcentrifuge tubes. The aluminum tray is fitted with a specially designed mat that securely holds in place up to four wellplates. High speed combined with a tiny orbit creates the vibrational shaking action required for mixing the very small volumes contained in the wells or in microcentrifuge tubes.

For samples that need to be mixed under controlled temperature / humidity conditions, the SSM5 footprint is ideal for placement inside an incubator including a CO_2 incubator.

Speed is variable from 250 to 1,200 rpm and is easily set via the digital display in 50 rpm increments. Shaking times can be set from 1 to 999 minutes on the built in digital timer. The unit can also be set for continuous operation.

Tube holders are available as optional accessories. They fit securely onto the platform turning the unit into an effective microtube mixer.

Technical Specification

Platform dimensions (w x l)	220 x 220mm
Number of plate positions	4
Speed range	250 to 1200 rpm
Orbit diameter	1.5mm
Maximum load	2.2 lbs
Operational temperature range	+4 to +40°C
Maximum permissible humidity	80%
Overall dimensions (w x d x h)	240 x 300 x 160mm 9.5” x 11.8” x 6.3”
Net weight	11lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SSM5/120V/60	Shaker, microtitre, mini
SSM5/1	Tube holder for 1.5ml tubes
SSM5/2	Tube holder for 0.5ml tubes

Shaker, orbital, mini SSM1

NEW

- Smooth orbital shaking action
- Orbit of 16mm is ideal for larger samples, for example multi well plates
- Built-in digital timer
- Variable speed control to 300 rpm
- Supplied with non-slip mat for multi-well plates etc.
- Optional accessory cradle system for flasks and bottles

The compact SSM1/120V/60 provides a smooth uniform circular motion with an orbit of 16mm. It is supplied with a non-slip mat that can hold up to four multi-well plates or diagnostic cards. The shaking action is ideal for samples of 0.5 to 5ml held in multi well plates, dishes and Petri dishes. The shaker can be used in incubators and environmental chambers (up to 40°C and 80% humidity).

Alternatively, an accessory cradle system is available that can accommodate a variety of vessels including flasks, bottles or beakers via four rubber securing bars. It turns the SSM1/120V/60 into a very effective mini platform shaker. It will hold up to:

4 x 250ml or 2 x 500ml or 1 x 1000ml Erlenmeyer 8 flasks or bottles.

These larger vessels are held between the rubber bars. The flexible cradle system has the benefit that different combinations of vessels can be used offering maximum versatility.

Speed is variable from 30 to 300 rpm. Once set on the digital display, the shaking speed is effectively maintained even over long periods of time. Shaking times can be set to run for 1 to 999 minutes on the built-in digital timer, or the unit can be set for continuous operation.

SSM1/120V/60

SSM1/120V/60 with SSM1/1

Technical Specification

Platform dimensions (w x l)	220 x 220mm 8.7” x 8.7”
Speed range	30 to 300 rpm
Orbit diameter	16mm
Maximum load	6.6 lbs
Operational temperature range	+4 to +40°C
Maximum permissible humidity	80%
Overall dimensions (w x d x h)	240 x 300 x 140mm 8.7” x 11.8” x 5.5”
Net weight	11lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SSM1/120V/60	Shaker, orbital, mini
SSM1/1	Accessory cradle with 4 securing bars
SSM1/2	Large platform (holds up 8 plates)
SSM1/3	Clear Acrylic® lid

SSL1/120V/60

SSL1/1

Shaker, orbital, lab scale, SSL1

NEW

- Orbital shaking action – ideal for aeration applications
- Digital speed selection to 300 rpm with soft start
- Built-in digital timer
- Reliable quiet drive mechanism
- Fully adjustable cradle system

This lab scale platform shaker has a powerful yet quiet shaking mechanism that has been designed for problem free continuous use.

Model SSL1/120V/60 provides a smooth orbital shaking action with an orbit of 16mm and speed range of 30 to 300 rpm, ideal for most culturing / aeration applications. It can be used in environmental chambers and CO_2 incubators.

The cradle type platform has six rubber cushioned horizontal securing bars with quick release handles. They can be easily adjusted both vertically and horizontally to hold most sizes and types of vessel, including flasks, bottles and beakers. For example, they will accommodate the following Erlenmeyer flasks or bottles:
12 x 250ml or 8 x 500ml or 6 x 1000ml or 2 x 2000ml.

The main advantage of this cradle system is that it can accommodate different sizes of vessel, a common requirement where shakers are used by different people in the laboratory.

Speed is fully variable and is set digitally for consistency. The speed is microprocessor controlled and accurately maintained even over long runs. A digital built-in timer allows shaking times from 1 to 999 minutes to be set. After the timer has counted down, the shaker stops and sounds an alert. Alternatively the unit can be set for continuous operation.

A larger platform is available as an optional accessory (catalog number SSL1/1). Designed to increase the capacity of the SSL1/120V/60, the platform is 510 x 510mm (20" x 20") with six securing bars. It will accommodate the following Erlenmeyer flasks or bottles:
30 x 250ml or 16 x 500ml or 9 x 1000ml or 4 x 2000ml.

When this platform is fitted, the maximum permissible speed is 150 rpm.

Technical Specification

	SSL1
Shaking action	Orbital
Platform dimensions (w x l)	335 x 335mm
	13.2" x 13.2"
Speed range	30 to 300 rpm
Orbit / amplitude	16mm
Maximum load	22 lbs
Overall dimensions (w x d x h)	360 x 420 x 270mm
	14.2" x 16.5" x 10.6"
Operational temperature range	+4 to +40°C
Maximum permissible humidity	80%
Net weight	25lbs
Electrical supply	120V, 60Hz

Ordering Information

Model	Description
SSL1/120V/60	Shaker, orbital, lab scale
SSL1/1	Accessory platform 510 x 510mm (20" x 20") with six rubber securing bars.

Stirrers & Stirrer Hotplates

from compact to large capacity ...
one of the widest choices available

CB161/120V/60

Stirrers, magnetic, CB161

- Chemically resistant ceramic top
- Spillproof design which helps deflect spills away from the controls and the user
- Powerful magnets for strong stirring action

Powerful magnets and motor give stirring speed up to 1500rpm and volumes up to 15 liters *.

Model CB161/120V/60 has a glass ceramic top which has excellent chemical resistance. The chemical properties make the surface very easy to keep clean. The white surface ensures good visibility of color changes, during titration for example.

Technical Specification

Model	CB161/120V/60
Plate material	Glass ceramic
Plate dimensions	160 x 160mm 6.3" x 6.3"
Stirrer speed, rpm	100 - 1500
Max. stirring capacity, liters*	15
Overall dimensions (w x d x h)	190 x 300 x 110mm 7.5" x 11.8" x 4.3"
Net weight	7lbs
Electrical supply	120V, 60Hz

Ordering Information

Cat. No	Description
CB161/120V/60	Stirrer, ceramic plate

* Based on water contained in a 20 liter flat bottom boiling flask.

stuart® 5 YEAR TOTAL WARRANTY

3 years parts & labor/2 additional years labor

Stirrer, magnetic, heavy duty, SB301

- Robust construction with stainless steel top
- Powerful magnets for strong magnetic coupling
- Stirs up to 30 liters

Large and powerful stirrer for use with vessels up to 30 liter capacity. Powerful magnetic drive with electronic feed-back speed control which accurately maintains the set speed. Supplied complete with 1 x 100mm PTFE coated stir bar.

SB301/120V/60

Technical specification

Plate material	Stainless steel
Plate dimensions	300 x 300mm 11.8" x 11.8"
Speed range, rpm	100 - 600
Stirring capacity, liters	30
Overall dimensions, (w x d x h)	300 x 365 x 105mm 11.8" x 14.4" x 4.1"
Net weight	11lbs
Electricity supply	120V, 60Hz

Ordering Information

Cat. No	Description
SB301/120V/60	Stirrer, magnetic, heavy duty

Dynalon magnetic stir bars

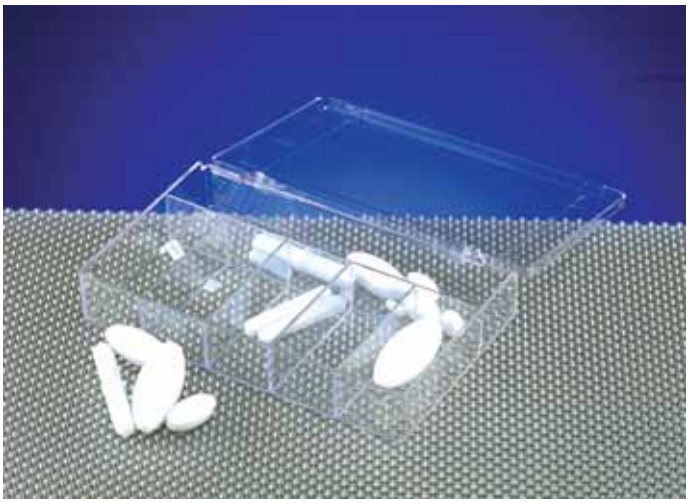
- Our stir bars feature…

  ALNICO V magnetic cores which are one of the most powerful permanent magnet alloys available.
- Stir bars should not…

  be stored in a random mass or dropped on a hard surface, especially steel.
- Stir bars should…

  be stored in pairs to maintain magnetic strength.
- In general…

  PTFE thickness accounts for 18% of stir bar diameter.



303595

Kit Contains 16 Stirring Bars

(2) 5/16" x 1/2" (8 x 13mm)	(2) 3/8" x 2" (9.5 x 51mm)
(2) 5/16" x 5/8" (8 x 16mm)	(2) 3/8" x 2 1/2" (9.5 x 64mm)
(2) 3/8" x 1" (9.5 x 25mm)	(2) 2 mm x 7 mm Micro Bars
(2) 3/8" x 1 1/2" (9.5 x 38mm)	(2) 3 mm x 10 mm Micro Bars

Ordering Information

Cat. No	Description
303595	Magnetic Stirring Bar Kit

CC162/120V/60 with SCT1 controller

Stirrers, magnetic, with hotplate, CC162 & SC162

- Choice of robust aluminum or chemically resistant ceramic tops
- For use with SCT1 digital temperature controller
- Powerful stirrer
- Advanced safety & communication features:
  - Flashing 'Hot' warning light
  - Spillproof design
  - Overheat protection
  - Visible indication of temperature control

The SC162 and CC162 stirrer hotplates are specifically designed for use with the Stuart SCT1 temperature controller.

Available in a choice of either robust aluminum or chemically resistant ceramic top, each is equipped with a range of advanced safety and communication features. To alert the user, a 'Hot' warning light will flash whenever the plate temperature is above 50°C, even when the hotplate is turned off and connected to the mains. The cast aluminum body is shaped for stability and helps deflect spills away from the controls. An Independent safety circuit prevents overheating in the event of control failure and internal electronic components are protected against corrosion. Powerful magnets and motor give stirring speed up to 1500rpm and volumes up to 15 liters.

The units automatically detect when the contact thermometer is plugged in. Communication with the SCT1 temperature controller is visible by an illuminated LED on the hotplate, providing reassurance that the temperature of the sample is precisely controlled at all times.

Both CC162 and SC162 models can be used independently of the SCT1 temperature controller as a general purpose stirrer hotplate.

Model CC162 has a glass ceramic top, which has excellent chemical and temperature resistance. The surface is easy to clean and the thermal properties allow very high plate temperatures.

Model SC162 (shown on page 49) has a robust aluminum/silicon alloy top plate for good heat transmission. A 700W element gives rapid heating and ensures even temperature distribution across the whole of the plate.

Technical Specification

Model	CC162	SC162
Plate material	Glass ceramic	aluminum/silicon alloy
Plate dimensions	160 x 160mm 6.3" x 6.3"	160 x 160mm 6.3" x 6.3"
Heated area	120 x 120mm 4.7" x 4.7"	160 x 160mm 6.3" x 6.3"
Heater power, W	500	700
Max. plate temp. °C	450	325
Stirrer speed, rpm	100 to 1500	100 to 1500
Max. stirring capacity, liters	15	15
Overall dim. (w x d x h)	190 x 300 x 110 7.5 x 11.8 x 4.3"	190 x 300 x 110mm 7.5 x 11.8 x 4.3"
Net weight, lbs	7.5	7.5
Electrical supply	120V, 60Hz	120V, 60Hz

Ordering Information

Cat. No	Description
CC162/120V/60	Stirrer/hotplate, ceramic plate, probe socket
SC162/120V/60	Stirrer/hotplate, aluminum plate, probe socket
SR1	Retort rod, 600mm x 12mm diameter

Temperature Controller, SCT1

- Accurate liquid temperature control
- Built in retort fitting and probe holder
- Detachable temperature probe
- Bright, easy to read LED display
- Compact and light weight
- Comprehensive range of accessories

The Stuart SCT1 temperature controller is the ideal instrument for the accurate temperature control of aqueous or oil based samples in the laboratory. Designed for use with the Stuart metal top (SC162) or ceramic top (CC162) stirrer hotplates, the SCT1 can be used either as a precise controller of temperature up to a maximum of 200°C or as a digital thermometer up to 325°C.

The SCT1 temperature controller features an in-built clamp allowing the controller to be mounted either on a horizontal or vertical retort rod, providing flexible positioning of the controller. In addition, the stainless steel temperature probe, used to measure the temperature of the sample, is detachable, allowing the main body of the SCT1 temperature controller to be positioned away from potentially damaging fumes. The SCT1 temperature controller regulates the hotplate to accurately control the temperature of the sample, which is set via the large LED display. When not in use the temperature probe can be held securely by the in-built probe holder.

A range of accessories is available to allow for a complete set up of temperature controller, probe and stirrer hotplate in the laboratory. An accessory probe holder clamps on to a retort rod to allow secure positioning of the temperature probe in the sample. A PTFE probe is also available as an accessory for those applications requiring a chemically resistant probe.

SC162/120V/60 with SCT1 controller

Technical Specification

Model	SCT1
Sensor type	PT100
Probe	Stainless steel
Temperature range °C	50° to 200°C
Accuracy, °C	±0.5°C
Resolution	1°C
Dimensions (w x d x h)	90 x 75 x 123mm
	3.5” x 3.0” x 4.8”
Weight, lbs	0.66 (including probe)

Ordering Information

Cat. No	Description
SCT1	Contact thermometer, digital
SCT1/1	Probe holder
SCT1/2	PTFE probe

Note: the SCT1 can only be used with the SC162 and CC162. It is not compatible with any other Stuart stirrer hotplate.

SM27

Stirrer, magnetic, portable, SM27

- Battery powered
- Tough, compact and light weight
- Variable speed up to 1300 rpm

Powered by long life batteries or car battery adapter this rugged little unit can be used almost anywhere. Ideal for use inside incubators, glove boxes or in the field. Housed in a tough, chemically resistant ABS case and supplied complete with batteries.

Technical specification

Max speed	1300 rpm
Capacity, liters H_2O	1.5
Overall dimensions (w x d x h)	150 x 160 x 70mm 5.9" x 6.3" x 2.8"
Net weight	3lbs
Electricity supply	4 x alkaline batteries
Battery type	1.5V, size D, IEC No. LR20
Battery life	600 hours continuous use

Ordering Information

Model	Description
SM27	Portable magnetic stirrer complete with 4 x LR20 batteries and 25mm PTFE stir bar
SM27/3	Car battery adapter, 12V, Fitted with standard car cigarette/cigar plug

Stirrers, magnetic, with hotplate, CB162

- Robust chemically resistant ceramic tops
- Advanced safety features:
  - Flashing 'Hot' warning light
  - Spillproof design
  - Independent safety circuit to protect against overheating
- Microprocessor control for accurate temperature setting

Stylish and economical general purpose stirrer hotplates designed with safety as well as performance in mind. The cast aluminum body is shaped for stability and helps deflect spills away from the controls and the user. The 'Hot' warning light will flash whenever the plate temperature is above 50°C even when the hotplate is turned off and connected to the mains. Independent safety circuit prevents overheating in the event of control failure and internal electronic components are protected against corrosion. Powerful magnets and motor give stirring speed up to 1500rpm and volumes up to 15 liters*.

Model CB162 has a glass ceramic top which has excellent chemical and temperature resistance. The surface is easy to clean and the thermal properties allow very high plate temperatures while ensuring the edges stay cooler, reducing the chance of accidental burns. The white surface ensures good visibility of colour changes.

CB162

Technical Specification

Model	CB162
Plate material	Glass ceramic
Plate dimensions	160 x 160mm 6.3" x 6.3"
Heated area	120 x 120mm 4.7" x 4.7
Heater power, W	500
Max. plate temp. °C	450
Stirrer speed, rpm	100 - 1500
Maximum stirring capacity, liters *	15
Overall dimensions (w x d x h)	190 x 300 x 110mm 7.5" x 11.8" x 4.3"
Net weight	7.5lbs
Electrical supply	120V, 60Hz

Ordering Information

Cat. No	Description
CB162	Stirrer/hotplate, ceramic plate

* Based on water contained in a 20 liter flat bottom boiling flask.

CD162/120V/60

Stirrer hotplates, digital, CD162

NEW

- Digital setting and control of both temperature and speed
- Supplied complete with temperature probe for accurate control of liquid temperature
- Advanced safety features:
  - Flashing "Hot" warning light
  - Independent safety circuit to protect against overheating
- Chemically resistant ceramic top

Sophisticated stirrer hotplates offering digital control of both temperature and stirring speed. Comes complete with a detachable PTFE coated probe which when immersed in a liquid sample can very accurately control its temperature to within ±0.5°C even over a very long period of time.

As the hotplate heats the sample to the set temperature, the advanced microprocessor automatically measures the rate of temperature rise to judge the capacity and nature of samples (e.g. oil or aqueous). It then optimizes the heating rate to minimize overshoot and time to set point. An audible alert sounds when the set temperature has been reached.

Both set and actual temperature of the sample are displayed simultaneously on a bright, easy to read vacuum fluorescent display.

For maximum security, an independent safety circuit automatically sets to 20°C above the set temperature and shuts off the heater if the temperature exceeds this. Therefore, the hotplate is safe to leave on continuously, even unsupervised e.g. overnight. Internal electronic components are protected against corrosion with a special coating.

Stirring action gives much better temperature uniformity within samples because the liquid is mixed effectively. Powerful magnets and motor give stirring speeds up to 1300 rpm and volumes up to 15 liters*.

Stirring speed is set and displayed digitally so that exactly the same speed can be used each time for reproducibility.

If the probe is unplugged, the temperature of the top plate can be set on the display. This can be useful for applications where accurate surface temperature is important such as warming microscope slides and microarrays and specialist electronics.

Model CD162/120V/60 has a glass ceramic top plate, which is chemically resistant and gives very fast heat up times.

With fitting for retort rod and supplied complete with PTFE coated probe and 2 x 25mm PTFE coated stirrer bars

Technical Specification

Model	CD162/120V/60
Plate material	Glass ceramic
Plate dimensions	160 x 160mm 6.3" x 6.3"
Heated area	120 x 120mm 4.7" x 4.7"
Heater power, W	500
Display resolution °C	1
Max. plate temp. °C	450
Max. liquid temp, with probe °C	200
Control accuracy with probe °C	±0.5°C
Stirrer speed, rpm	200 - 1300
Max. stirring capacity, liters *	15
Net weight	7.5lbs
Overall dimensions (w x d x h)	190 x 300 x 110 mm 7.5" x 11.8" x 4.3"
Electrical supply	120V, 60Hz

Ordering Information

Cat. No	Description
CD162/120V/60	Digital stirrer/hotplate, ceramic plate, 500W

Accessories

CD162/1	Temperature probe, stainless steel
SR1	Retort rod, 600 x 12mm

* Based on water contained in a 20 liter flat bottom boiling flask.

SB162-3

Stirrer, magnetic, 3 position with hotplate, SB162-3

- Three independently controlled stirring/heating positions
- Separate "Hot" warning lights for each plate
- Powerful magnets for strong magnetic coupling

A space saving and economical unit with 3 independent heating/stirring positions in a footprint only 600 x 270mm. Easily accommodates 3 x 2 liter beakers.

Unit only requires one power point and is ideal for quality control applications where multiple samples require simultaneous heating and stirring, under the same conditions.

A "Hot" warning light for each plate will flash whenever its temperature is above 50°C and will operate even when the hotplate is turned off and connected to the outlet.

The top plates are a robust aluminum/ silicon alloy, providing even plate temperature.

Powerful magnets and motor give stirring speed up to 1500rpm and volumes up to 15 liters.*

Supplied complete with 3 x 25mm PTFE coated stir bars.

Technical specification

Plate material	Al/Si alloy
Individual plate dimensions, mm	160 x 160mm 6.3” x 6.3”
Heater power, W	3 x 700
Maximum plate temperature. °C	325
Speed range, rpm	100 - 1500
Overall dimensions (w x d x h)	600 x 270 x 110mm 23.6” x 10.6” x 4.3”
Net weight	25lbs
Electricity supply	230V, 50Hz, 2250W

Ordering Information

Model	Description
SB162-3	Stirrer, magnetic, 3 position with heating
SR3	Retort rod, 600mm plus bracket

*Based on water contained on a 20 liter glass bottom boiling flask.

Please note: SB162-3 is not available in 120V/60

Water Purification

Quality distilled...
the most reliable method of purifying water

Distillation

Distillation is a natural process that has been used to purify liquids for many hundreds of years. Today it remains the most common technique for water purification in use in laboratories. From schools to research institutes the simplicity, reliability and versatility of distillation make it the first choice for producing pure water for general use. It has the widest capability of any method of water treatment and is ideal for the removal of:

- Dissolved inorganic salts
- Bacteria
- Pyrogens
- Particulate matter
- Colloids
- Organic material boiling at >100°C

The performance of a water still is less dependent on the quality and temperature of the feed water than most other methods of water treatment. It is a visible process, easy to monitor and has no hidden resins or membranes to degrade and affect water quality.

Principles of distillation

There is a major difference between distillation and all other techniques of water purification in that the contaminants are not removed from the water but that the water is removed from its contaminants.

The feed water is boiled producing pure steam with contaminants being left behind in the boiling chamber. Steam is then condensed back into pure water.

It is this double phase change which gives distillation its versatility and reliability. The only contaminants which can carry through the phase change are organic materials with a boiling point below 100°C and dissolved gases.

How a Barloworld Scientific water still works

There are 4 basic components to any Barloworld Scientific water still:

- Boiler
- Condenser
- Constant level device
- Heater

Water is heated in the boiler to produce pure steam. This is fed into the condenser via a long vertical tube with baffles in order to prevent carry over of raw water droplets.

Water is fed through the condenser, cooling the steam to produce distilled water and itself being warmed in the process. This warmed water is then fed to the boiler via the constant level device which maintains the water in the boiler at the correct level and increases efficiency.

The vertical design of condenser is common to all Barloworld Scientific water stills and ensures the maximum energy transfer between cooling water and condensate. These highly efficient condensers produce cold distilled water ready for immediate use.

Distinction®

Barloworld Scientific water stills

There are 2 levels of specification to choose from in the Barloworld Scientific water still range:

Distinction

Economical borosilicate glass still with silica sheathed heater. Produces 4 liters/hr single distilled water. A safety device is included which turns off the heater and prevents overflow when the collecting reservoir is full. See page 58.

Merit

Merit

A simple glass water still with long life metal heater and twin safety thermostats. Ideal for schools and colleges. See page 59.

Accessories

A range of accessories is available to compliment the range of water stills including deionizer, filter and storage aspirators.

Reservoir options

A choice of aspirator bottles manufactured from polypropylene. Ideal for storing distilled water. See page 60.

539994-0000

Water still, Distinction®, 539994

- All glass construction
- Two independent safety thermostats
- Safety reservoir full shut off
- Wall mountable
- Silica sheathed heaters

All glass construction with silica sheathed heaters ensures top purity distillate at an economical price.

Fitted with a control device to turn off the heater when the collecting reservoir is full. Prevents overflow if the still is inadvertently left switched on when unattended. With two independent safety thermostats to prevent over heating in the event of an interruption to the water supply.

The unique condenser design ensures that the droplets of distilled water remain in contact with the cooling coil for the longest possible time producing cold distilled water and pre-heating the boiler feed to increase efficiency.

Screwthreads are incorporated on all water connections so hoses can be fitted and removed easily and safely without risk of breakage.

Built in acid addition funnel and drain stopcock allow easy descaling without dismantling the glassware.

The stand is pre-drilled to facilitate wall mounting.

Conductivity and resistivity are affected by the presence of dissolved carbon dioxide. All figures given in this catalogue are based on tests carried out on the still output at 20°C and free from carbon dioxide.

Technical specification

Output	4 liters/hr, single distilled
pH	5.0 – 6.5
Conductivity, μScm^{-1}	1.0 – 2.0
Resistivity, mOhm-cm	0.5 – 1.0
Temperature	25 - 35°C
Pyrogen content *	Pyrogen free
Water supply	1 liter/min
	3 – 100psi (20-700kPa)
Electricity supply	220 or 240V, 50-60Hz, single phase
Power requirement	3kW
Dimensions (wxdxh)	540 x 160 x 410mm
	21.2” x 6.3” x 16.1”

* care is required to produce pyrogen free water and the output should be tested before use.

Ordering information

Model	Description
539994-0000	Distinction water still, 240V
539994-0001	220V Heater element 3kw
539994-0002	Replacement boiler
540014-0003	Replacement condenser

Water still, Merit, 540004

- Economical price
- Glass construction with long life metal heating element
- Two independent safety thermostats
- Wall mountable

The Merit is the ideal choice for budget conscious laboratories that can't afford to compromise on quality. It combines economy and high performance with a host of other features which comparable stills cannot match.

Built in acid addition funnel and drain stopcock allow easy descaling without dismantling the glassware.

The unique condenser design ensures that the droplets of distilled water remain in contact with the cooling coil for the longest possible time producing cold distilled water and pre-heating the boiler feed to increase efficiency.

Screwthreads are incorporated on all water connections so hoses can be fitted and removed easily and safely without risk of breakage.

Safety features include two independent safety thermostats to prevent over heating in the event of failure of the water supply.

The stand is pre-drilled to facilitate wall mounting.

540004-0000

Technical specification

Output	4 liters/hr, single distilled
pH	5.0 – 6.5
Conductivity, µScm^{-1}	3.0 – 4.0
Resistivity, mOhm-cm	0.25 – 0.3
Temperature	25 - 35°C
Pyrogen content *	Pyrogen free
Water supply	1 liter/min
	3 – 100psi
	(20-700kPa)
Electricity supply	220 or 240V, 50-60Hz, single phase
Power requirement	3kW
Dimensions, (wxdxh), mm	500 x 150 x 450
	19.7" x 5.9" x 17.7"

* care is required to produce pyrogen free water and the output should be tested before use.

Conductivity and resistivity are affected by the presence of dissolved carbon dioxide. All figures given in this catalogue are based on tests carried out on the still output at 20°C and free from carbon dioxide.

Ordering information

Model	Description
540004-0000	Distinction water still, 240V
540014-0001	220V Heater element 3kw
540014-0002	Replacement boiler
540014-0003	Replacement condenser

505634-0002

Water still accessories

The following accessories are available for use with Distinction and Merit water stills.

Ordering information

Cat. No.	Description
505634-0001	Azlon® carboy with leakproof spigot ideal for use as a water still reservoir. Manufactured from polypropylene and autoclaveable at 121°C. Cap with drill guides for distillate and air inlets. Capacity 10 liters.
505634-0002	As above but capacity 10 liters
505634-0003	As above but capacity 20 liters

Plastic fabrication available from Dynalab Corp.

Dynalab Corp's Rochester, NY custom plastic fabrication facility manufactures many products for use in laboratories, industry and education including fume hoods, environmental chambers and laboratory furniture. Plastic fabricators have the capabilities to produce custom jobs following the exact requirements of your application. A few examples of our custom fabrication products include tanks, fittings, machine guards, fume hoods, cabinets, chambers, gears, racks and thousands of other industrial and laboratory plastic fabrication items. We have extensive experience in clear acrylic fabrication a common material for custom plastic fabrication projects (especially for Beta Radiation Protection).

Our custom plastic fabrication facilities in Rochester, NY are capable of producing prototypes as well as high volume job runs. We would be happy to provide you with a free quotation and any technical assistance you may require throughout your project. E-mail our custom plastic fabrication department for further information.

Dynalab works with virtually all types of plastics. We stock a large inventory of sheet, rod, tubing, extrusions, fittings, plastic hardware, perforated sheet, etc. Our capabilities include but are certainly not limited to:

- Assembly
- Bending
- Bonding
- CNC Lathe Turning
- CNC Machining
- Cutting
- Engraving
- Flame Polishing
- Forming
- Hot Stamping
- Inserting
- Threading
- Ultrasonic Welding
- Welding

For additional information on Dynalab Corp's custom plastic fabrication please visit www.dynalabcorp.com or phone 800 828 6595.

Plastic lab supplies available from Dynalon Labware

Offering science equipment, reusable and single use plastic labware for use in education, industry and the laboratory. Dynalon Labware is your one stop for plastic consumables and basic lab equipment with product ranges including but not limited to the following:

- Beakers
- BETA Protection
- Bottles
- Carboys
- Containers
- Cuvettes
- Cylinders
- Desiccators
- Flasks
- Funnels
- Liquid Handling
- Melting Point
- Petri Dishes
- Pipettes
- Plastic Fabrication
- Safety Products
- Staining Accessories
- Stirrer/Hotplates
- Stirring Bars
- Vials
- Water Stills

For additional information on Dynalon Labware please visit www.dynalon.com or telephone 800 334 7585.

Science equipment available from Techne

Techne Inc. offer sales, support and calibration services for a wide range of high quality laboratory, life science, temperature calibration, electrochemistry and spectroscopy instruments. Techne Inc. offers a wide range of instruments including:

- Dry Block Temperature Calibrators
- Thermal Cyclers
- Water Baths
- Electrochemistry Meters and Probes
- Temperature Sensors and Thermometers
- Hybridization Ovens
- Spectrophotometers
- Flame Photometers
- Dri-blocks
- Fluidized Baths

For additional information on Techne please visit www.techneusa.com or telephone 800 225 9243.

Scientific instrumentation available from Jenway

Manufacturer of electronic thermometers and probes encompassing a wide range of analytical products. Particular strengths are in electrochemistry & optical spectroscopy. Jenway is a leading company designing and manufacturing high quality scientific instrumentation. Our extensive product range includes:

- UV/Vis Spectrophotometers
- Life Science & Environmental Spectrophotometers
- Portable and Laboratory meters for the measurement of Dissolved Oxygen, pH, Conductivity and Specific Ions
- Flame Photometers
- Colorimeters

For additional information on Jenway please visit www.techneusa.com or telephone 800 225 9243.

index

Catalog Number	Page Number
BWF 11/13	12
CB161/120V/60	46
CB162	51
CB300/120V/60	18
CC162/120V/60	48
CD162/1	53
CD162/120V/60	52
CR300/230V/50	20
CTF 12/65/550/301	14
CWF 12/13/3216P1	9
CWF 12/23/3216P1	9
CWF 13/13/3216P1	9
ELF 11/6B/301	8
ELF 11/14B/301	8
HST 12/400	15
HTF 17/5/3216P1	11
MTF 10/25/130/301	14
MTF 12/38/250/301	14
MTF 12/38/400/301	14
PF 30/300	30
PF 60/300	30
PF 120/300	30
PF 200/300	30
RHF 16/3/3216P1	10
SA8/1	28
SA8/120V/60	28
SB162-3	54
SB2/120V/60	38
SB3/1	38
SB3/2	38
SB3/3	38
SB3/4	38
SB3/5	38
SB3/6	38
SB3/120V/60	39
SB301/120V/60	47
SB500/230V/50	19
SC162/120V/60	48
SC6/1	6
SC6/120V/60	6

Catalog Number	Page Number
SC6/1/3	6
SC6/2	6
SC6/3	6
SC6/4	6
SC6/5	6
SCT1	49
SCT1/1	49
SCT1/2	49
SI50/120V/60	22
SM27	50
SM27/3	50
SMP1/4	26
SMP2/1	24,26
SMP3/120V/60	24
SMP10/1	25,26
SMP10/120V/60	25
SR1	48,53
SR2	28
SR3	54
SRT1/120V/60	36
SRT2/120V/60	36
SSL1/1	44
SSL1/120V/60	44
SSL3/1	33
SSL3/120V/60	33
SSM1/1	43
SSM1/2	43
SSM1/3	43
SSM1/120V/60	43
SSM3/1	32
SSM3/120V/60	32
SSM4/120V/60	32
SSM5/1	42
SSM5/2	42
SSM5/120V/60	42
STF 15/450/3216P1/OTC	16
303595	47
505634-0001	60
539994-0000	58
539994-0001	58
539994-0002	58
540004-0000	59
540014-0001	59
540014-0002	59
540014-0003	58,59

Item	Page Number
A	
Aspirators	60
B	
Battery stirrer	50
Blood tube rotator	38
Bottle shakers	44
C	
Carboys	60
Capillary tubes	24,25,26
Ceramic	
- Hotplates	18
- Magnetic stirrers	46
- Magnetic stirrer hotplates	51, 52, 53
Colony counter	6
Culture tube holders	38
D	
Distinction® water still	58
E	
Electrical safety	64
G	
Gyro-rocker®	32, 33
H	
Hotplates	
- Aluminum top	19
- Ceramic top	18
- Infrared	20
- Large capacity	19
I	
Incubators	
- Orbital shaker	22
Infrared	
- Hotplate	20
M	
Magnetic stirrers	
- Battery operated	50
- Ceramic top	46
- Heavy duty	47
- Hotplate	48, 51 to 54
Magnetic stirring bars	47

Item	Page Number
Melting point apparatus	
- Advanced	.24
- Analogue	.26
- Digital	.25
Merit water still	.59
Microtitre plate	
- Shaker	.42
Mixers	
- Rockers	.32, 33
- Rollers	.36
- Rotators	.38, 39
- Vortex	.28
O	
Orbital	
- Shakers	.42 to 44
- Shaker incubator	.22
P	
Platform shakers	.43, 44
R	
Retort rods	.53, 54
Rockers	
- Labscale	.33
- Mini	.32
- Gyro rocker	.32, 33
- See Saw	.32, 33
Roller mixers	.36
Rotators	
- Blood tube	.38, 39
- Test tube	.38, 39
S	
Shakers	
- Labscale	.44
- Microtitre	.42
- Mini	.43
- Orbital	.43, 44
Stirrers	
- Battery operated	.50
- Ceramic top	.46
- Heavy duty	.47
- Hotplate	.48, 51 to 54
- Metal top	.47
Stir Bars	
- Dynalon Kit	.47

Item	Page Number
T	
Temperature Controller	.49
Test-tube	
- Rotators	.38, 39
Thermometers	.26, 49
V	
Vortex mixers	
- Accessory pack	.28
- Variable speed	.28
W	
Water stills	
- Accesories	.60
- Distinction®	.58
- Merit	.59

CE compliant

Epsilon Compliance

Compliance Certificate

In accordance with
European Directive 89/336/EEC as Amended by European Directive 93/68/EEC
"EMC Directive"

European Directive 73/23/EEC as amended by European Directive 93/68/EEC
"Low Voltage Directive"

Date: 5th January 2004

Certificate Number: Epsilon 04TEST1279

Project Number: E1560859

Report Number: RLTSKL0859/A/1 & RLTSKL0859/A/2

Manufacturer: Bibby Sterilin Limited
Stone
Staffordshire
ST15 0SA
UK

Epsilon hereby declares that the products:

SI30H Hybridization Oven/Shaker
SI39 Mini Incubator

Are in Compliance with the requirements of the listed directives.

Equipment Specification: The full product specifications are listed in reports number RLTSKL0859/A/1 & RLTSKL0859/A/2

The following Harmonised European Standards have been applied:

EN 61326: 1997 + Amendments A1 & A2: (Electrical Equipment for Measurement, Control and Laboratory use).
EN 61010-1: 2001: (Safety Requirements Electrical Equipment for Measurement, Control and Laboratory use).
EN 61010-2-010: 1995 (Particular requirements for laboratory equipment for the heating of materials).
EN 61010-2-051: 1996 (Particular requirements for laboratory equipment for mechanical mixing and stirring).

This Certificate May Only Be Used In Its Entirety and Without Change

On Behalf of Epsilon Compliance:

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